

The listing of the claims will replace the previous version,  
and the listing of the claims:

LISTING OF THE CLAIMS

1. (currently amended) A method for obtaining an accurate mixing ratio of a liquid mixture, comprising:

providing a pump chamber having a plunger to provide suction and discharge operations;

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*Cont'd*  
mixing at least two different liquids having at a predetermined mixing ratio by ~~setting~~ changing a switching timing of switch valves, said ~~for transferring the~~ at least two different liquids being sucked into the pump chamber alternately by operation of the plunger and by switching the switch valves to thereby determine; ~~determining~~ an actual mixing ratio of the at least two different liquids mixed together;

calculating a mixing ratio error as a difference between said actual mixing ratio and said predetermined mixing ratio;

storing said mixing ratio error in a memory; and

correcting the switching timing of the switch valves for the at least two different liquids based on said stored mixing ratio error in operating the plunger for a next operation to thereby obtain the accurate mixing ratio of the at least two different liquids.

2. (original) A method according to claim 1, wherein said at least two different liquids are sequentially transferred by opening and closing the switch valves for the liquids.

3. (original) A method according to claim 2, wherein said switching timing of the switch valves is corrected for subsequent transfer of the at least two different liquids.

4. (currently amended) A liquid transfer device for transferring a mixture of at least two different liquids as a mobile phase for an analytical apparatus, comprising:

a plurality of switch valves connected to said at least two different liquids, respectively;

a pump having a pump chamber with an outlet and an inlet connected to said switch valves, and a plunger slidably situated in the pump chamber for transferring the liquids to the pump chamber alternately through the switch valves to prepare a mixture thereof;

a mixing ratio calculation portion for determining an actual mixing ratio of the mixture mixed at a predetermined mixing ratio by said pump;

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a mixing ratio error calculation portion for calculating a mixing ratio error as a difference between said actual mixing ratio calculated by said mixing ratio calculation portion and the predetermined mixing ratio electrically connected to said mixing ratio calculation portion;

a memory portion for storing said mixing ratio error calculated by said mixing ratio error calculation portion electrically connected to said mixing ratio error calculation portion; and

a valve-switching-timing correction portion for correcting a switching timing of the switch valves based on the mixing ratio error stored in said memory portion in operating the plunger for a next operation to thereby obtain an accurate mixing ratio of the liquids, said valve-switching-timing correction portion being electrically connected to said mixing ratio error calculation portion, said memory portion, ~~said position sensor~~ and said plurality of switch.

5.(currently amended) A liquid transfer device according to claim 4, wherein said pump further includes ~~a pump chamber having an inlet connected to the switch valves and an outlet, a plunger located in the pump chamber,~~ a cam connected to the plunger, a motor connected to the cam for reciprocating the plunger, and a position sensor connected to the motor for detecting a position of the plunger through the motor.

6.(original) A liquid transfer device according to claim 5, further comprising a mixer for mixing the mobile phase connected to the outlet of the pump, an injector portion connected to the mixer for injecting a sample into the mobile phase, a column portion for separating the sample connected to the injector portion, and a detector for detecting the sample connected to the column portion.

7.(currently amended) A liquid chromatograph comprises:

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a liquid transfer device ~~having~~ with a low pressure gradient function including a pump chamber having an inlet and an outlet, a plunger slidably situated in the pump chamber, and a plurality of switch valves ~~to be changed to switch~~ connected to the inlet for changing liquids to be transferred at a predetermined timing for transferring the liquids sequentially as a mobile phase by an operation of the plunger to have a predetermined mixing ratio;

a mixing ratio calculation portion for determining an actual mixing ratio of said mobile phase by the liquid transfer device actually operated based on the predetermined mixing ratio;

a mixing ratio error calculation portion for calculating a mixing ratio error as a difference between said actual mixing ratio calculated by said mixing ratio calculation portion and the predetermined mixing ratio electrically connected to said mixing ratio calculation portion;

a memory portion for storing said mixing ratio error calculated by said mixing ratio error calculation portion electrically connected to said mixing ratio error calculation portion; and

a valve-switching-timing correction portion for correcting a switching timing of the switch valves based on the mixing ratio error stored in said memory portion in operating the plunger for a next operation to thereby obtain an accurate mixing ratio of the liquids, said valve-switching-timing correction portion being electrically connected to said mixing ratio error calculation

portion, said memory portion, ~~said position sensor~~ and said plurality of switch valves.

8.(original) A liquid chromatograph according to claim 7, further comprising a detector for obtaining information of the actual mixing ratio of the mobile phase, said mixing ratio calculation portion calculating the actual mixing ratio based on a signal from said detector.

9(original). A liquid chromatograph according to claim 8, further comprising a mixer for mixing the mobile phase connected to the liquid transfer device, an injector portion connected to the mixer for injecting a sample into the mobile phase, and a column portion for separating the sample connected to the injector portion, said detector being connected to the column portion.

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